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VOL. 18 PART 2

TRANSACTIONS

OF THE

SOCIETY FOR BRITISH ENTOMOLOGY

World List abbreviation: *Trans. Soc. Brit. Ent.*

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M. W. SERVICE

Aquatic Insect Fauna of Brownsea Island and the Isle of Purbeck, Dorset

DATE OF PUBLICATION, MARCH 1968.

Copies may be purchased from G. R. GRADWELL, Hope Department of Entomology, University Museum, Oxford

Price 8/- post free

Published for the Society
by the British Trust for Entomology Ltd.

THE BRITISH TRUST FOR ENTOMOLOGY

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REGISTERED ADDRESS—41 Queens Gate, London, S.W.7.

EDITORIAL—The Editor: Dr. E. J. Popham, Dept. of Biology, The University, Salford, Lancs.

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SUBSCRIPTIONS, SALES and MEMBERSHIP—The Secretary, G. R. Gradwell, Hope Dept. of Entomology, University Museum, Oxford.

PUBLICATIONS

THE ENTOMOLOGIST. Published monthly, one volume per annum. Subscription rate 35/- per annum.

THE TRANSACTIONS OF THE SOCIETY FOR BRITISH ENTOMOLOGY.

Published irregularly, one volume every two years. Subscription rate rate 30/- per annum.

Members of the Trust may subscribe to both periodicals at a combined subscription of 55/- per annum.

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TRANSACTIONS OF THE SOCIETY
FOR BRITISH ENTOMOLOGY

VOL. 18 MARCH 1968 PART II

Aquatic Insect Fauna of Brownsea Island and the Isle of Purbeck, Dorset

By M. W. Service
(The Nature Conservancy, Monks Wood Experimental Station, Abbots Ripton, Huntingdon).

From 1964 to 1966 numerous collections of aquatic insects were made in Dorset from Brownsea Island, and from several sites on the northern half of the Isle of Purbeck. In addition a few collections of *Simulium* larvae and pupae were made from streams and rivers in other parts of south Dorset, and adults of some aquatic insects were also caught in a mercury vapour and a New Jersey type light trap. Previous to these surveys, there have been no collections of aquatic insects from Brownsea Island, and apart from a few early records (Pearce and Walton, 1939) and the recent work of Moore (1964) on dragonflies, there have been very few collections from the Isle of Purbeck. The results presented in this paper therefore represent the first detailed information on the occurrence and distribution of the aquatic insects of the area.

The numbers in parentheses following the names of the insect orders refer to the number of species found. When specimens could only be identified to generic level, and there was no named species in the genera, they have been counted as representing one species, although more may be involved. The letters B and P in front of the specific names denote that they have only been recorded from Brownsea Island and the Isle of Purbeck, respectively. County records are not indicated, because although these may be of interest when rare species, such as *Graphoderus cinerus* L. are found, little is gained in recording the first appearance in Dorset of very common and widespread species such as *Cloëon dipterum* (L.) and *Baëtis rhodani* (Pictet), etc., which have been regularly collected from the county but not recorded in print.

Because of difficulties in identification, Chironomid flies were not collected.

Collections from Brownsea Island (fig. 1)

Brownsea is the largest of the five islands in Poole Harbour. It is just under $1\frac{1}{2}$ miles long and $\frac{3}{4}$ mile wide, with a coastline of about $3\frac{3}{4}$ miles enclosing some 500 acres of land. Formerly, it

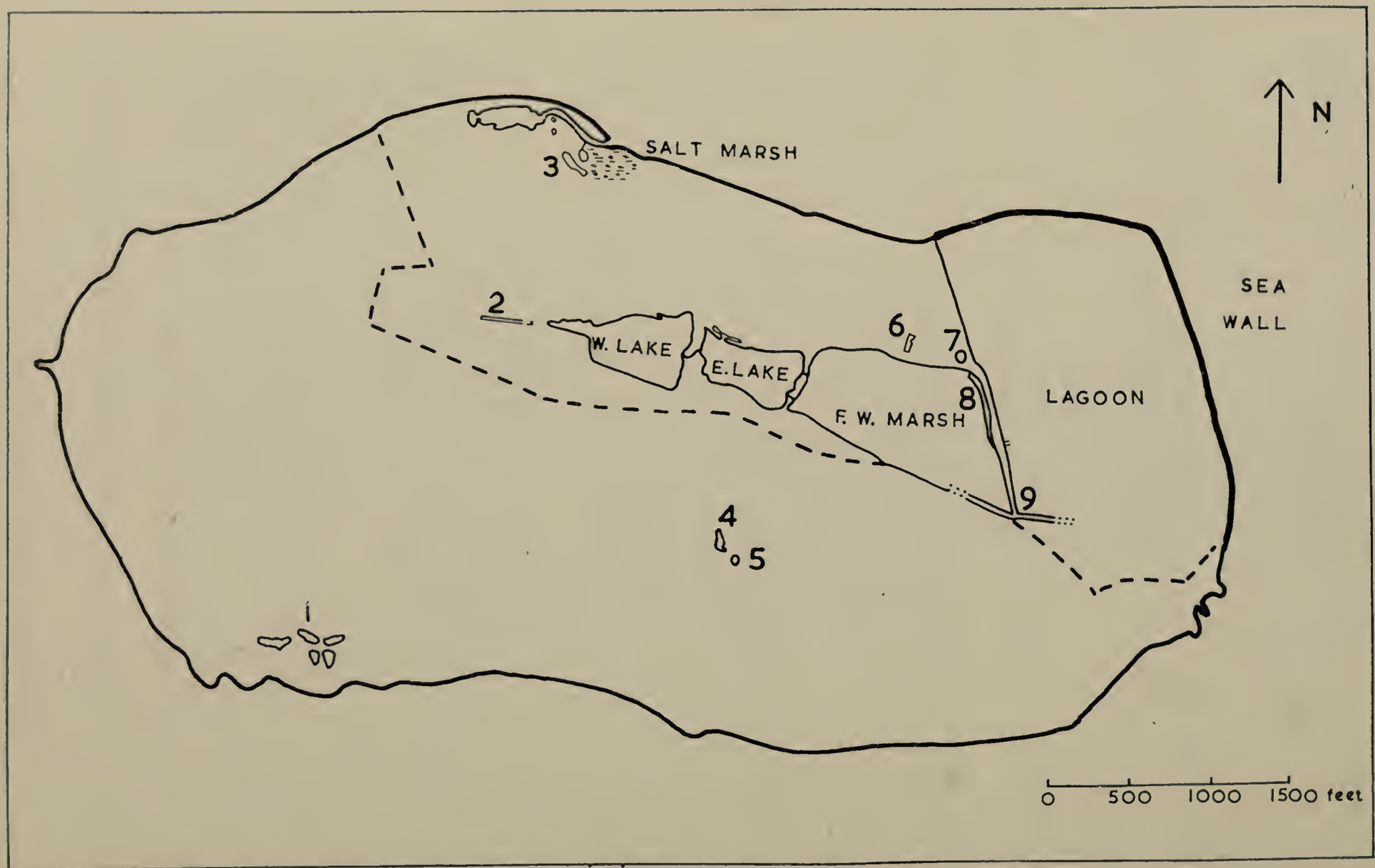

FIG. 1—Brownsea Island, Dorset, showing aquatic habitats: 1, Boy Scout's ponds; 2, Water reservoir drain; 3, Seymer's pond; 4, Beech pond; 5, Woodland pool; 6, Villa; 7, Bomb-crater; 8, Ditch; 9, Marsh outlet; - - -, Boundary of Dorset Naturalist's Trust Nature Reserve.

was privately owned, but in 1962 it became a National Trust property and the Dorset Naturalist's Trust now manage some 240 acres as a nature reserve. Biologically the island is of interest as it represents an island that has reverted to a wilderness and has experienced little human interference during the past 40 years. It is scheduled by the Nature Conservancy as a Site of Special Scientific interest.

Because of the island's small size and diversity of aquatic habitats, it is convenient to list separately the insects found in the various habitats and also to briefly describe them. All water on the island, as on the Isle of Purbeck, is slightly acidic (pH about 5-6). Water seeps through the ground and runs into the West Lake, which has a maximum depth of about 10 feet, from here it passes by an outlet to the East Lake, which is probably about the same depth. Both lakes are bordered by a mixture of coniferous and deciduous trees, and *Typha angustifolia* L., *Sparganium* species and several species of *Potamageton* grow along their shore lines. To the west of the W. lake there is a shallow earthen drain, hereafter referred to as the water reservoir drain, this contains little vegetation except green filamentous algae. Water flows out of the E. lake through two outlets into a freshwater reed marsh. The most northerly one is of particular interest because several *Simulium* species breed in its very slowly running water (Service, 1966), it is called the E. lake outlet. Only one insect was found in the other outlet which is termed the E. lake drain. Comparatively recently scrub vegetation has invaded part of the 24 acre freshwater marsh, but *Phragmites communis* Trin. forms the dominant community over about 60 per cent. of the remaining area, while the rest is colonized by *Juncus acutiflorus* Hoffman and *J. effusus* L. Numerous small heavily shaded pockets of water are scattered throughout the marsh between the clumps of reed and rushes, some larger and shallow pools also occur, especially in the scrub area. The eastern edge was formerly bordered by a distinct ditch, but due to recent flooding this now no longer exists. Water leaves the marsh and enters the lagoon by two outlets, that by the boundary of the nature reserve has been called the marsh outlet. The water level (about $\frac{3}{4}$-$1\frac{1}{2}$ ft.) and salinity (about 0.0027-3.23 per cent.) of the lagoon depends on direct rainfall, the volume of water discharging into it from the freshwater marsh and the amount of sea water entering *via* the sluices in the sea wall. Brackish and freshwater pools and channels are formed in the low lying water-logged ground bordering the south-eastern part of the lagoon. A group of five ponds with thick growths of *Eleogiton fluitans* (L.) occur at the south-west corner of the island, and these have been termed the boy scout's ponds because their first scout camp was at this site. A small heavily shaded pond with a thick litter of leaves, the beech pond, is found near the middle of the island. Near to it is a small shaded woodland pool, which differs from the beech pond in that it usually dries

out each summer A small round water-filled bomb-crater is situated north east of the freshwater marsh and contains luxuriant growths of *T. latifolia* L. and *Iris pseudacorus* L. in the middle, *P. pussilus* L. and *Lemna minor* L. are also present. This pond is reminiscent of the small village pond that is fast disappearing from the countryside. Finally, at the most northerly point of the island there are several salt water ponds and a salt marsh colonized by *Spartina townsendii* H. and J. Groves and *J. maritimus* Lam., behind this there is a deep and shaded freshwater pond called Seymer's pond.

Despite such a diverse variety of freshwater habitats on Brownsea there are no amphibia. Neither do fish occur, except for the occasional presence of Sticklebacks (*Gasterosteus aculeatus* (L.)) in the lagoon and salt marsh. There are therefore no vertebrate predators of the aquatic insects on the island apart from wildfowl, which are most common on the lagoon where they undoubtedly feed mainly on the large numbers of crustacea present in the mud.

MEGALOPTERA (1)

B. *Sialis lutaria* (L.). E. lake outlet and in water filled sections of tropical bamboo placed near this site. Adults at windows of villa.

PLECOPTERA (4)

Nemoura cinerea (Retzius). Boy Scout's ponds, freshwater marsh, ditch, marsh outlet, bomb-crater, adults amongst vegetation of the freshwater marsh and at windows of villa.

B. *N. dubitans* Morton. Adults at windows of villa.

N. erratica Claassen. Adults at 150 w. tungsten bulb light trap.

B. *N. cambrica* (Stephens). Adult at window of villa.

EPHEMEROPTERA (3)

B. *Ephemerella ignita* (Poda). W. lake.

Leptophlebia marginata (L.). Beech pond.

Cloëon dipterum (L.). Boy Scout's ponds, W. and E. lakes, freshwater marsh, ditch, bomb-crater.

TRICHOPTERA (7)

Phryganea striata L./*P. grandis* L. Immature larvae, probably belonging to former species, found in freshwater marsh.

Glyphotaelius pellucidus (Retzius). Beech pond, W. and E. lakes, E. lake outlet, and adults in vegetation of salt marsh and at 150 w. light trap.

B. *Limnephilus affinis* Curtis. Salt marsh.

B. *L. marmoratus* Curtis. Salt marsh, adults in vegetation of salt marshes, resting inside old derelict farm buildings and at 150 w. light trap.
Limnephilus spp. Boy Scouts' ponds, W. and E. lakes, E. lake outlet, freshwater marsh, ditch, lagoon.
B. *Potamophylax* (=*Stenophylax* grp.). E. lake outlet.
Polycentropus flavomaculatus (Pictet). E. lake outlet.
Trichostegia minor Curtis. Beech pond.

ODONATA (13)

Coenagrion puella (L.). Bomb-crater.
Ceriagrion tenellum (Villers). Adults in flight.
Pyrrhosoma nymphula (Sulzer). Boy Scout's ponds, W. and E. lakes, freshwater marsh, bomb-crater.
Ishnura elegans (Van der Linden). Boy Scout's ponds, E. lake, bomb-crater.
Enallagma cyathigerum (Charpentier). Adults in flight.
Lestes sponsa Hansemann. Bomb-crater.
B. *Cordulegaster boltonii* (Donovan). Adults in flight.
Anax imperator Leach. Boy Scout's ponds, bomb-crater.
Aeshna cyanea (Müller). Boy Scout's ponds, beech pond, bomb-crater.
Cordulia aenea (L.). Adults in flight.
Libellula quadrimaculata L. Bomb-crater.
Sympetrum striolatum s.l. Boy Scout's ponds, freshwater marsh, ditch, bomb-crater.
S. sanguineum (Müller). Boy Scout's ponds.

HEMIPTERA (21)

B. *Mesovelia furcata* Muslant and Rey. Boy Scout's ponds, salt marsh, bomb-crater.
Hydrometra stagnorum (L.). Boy Scout's ponds, salt marsh, water reservoir drain, E. lake outlet, ditch, bomb-crater.
B. *Velia caprai* Tamanini/*V. sauli* Tamanini. Immature forms, E. lake outlet.
Gerris thoracicus Schummel. Salt marsh.
B. *G. lacustris* (L.). Salt marsh, bomb-crater.
Nepa cinerea L. E. lake, freshwater marsh.
Notonecta obliqua Thunberg. E. lake, bomb-crater.
B. *N. obliqua* var. *delcourti* Poisson. Ditch, bomb-crater.
B. *N. maculata* Fab. Bomb crater.
B. *Cymatia bonsdorffi* (C. Sahlberg). Boy Scout's ponds.
B. *Corixa dentipes* (Thomson). Boy Scout's ponds, W. and E. lakes.
B. *C. punctata* (Illiger). Boy Scout's ponds, E. lake.
Hesperocorixa castanea (Thomson). Boy Scout's ponds.
H. linnei (Fieber). Seymer's pond, W. lake.

H. sahlbergi (Fieber). Boy Scout's pond, beech pond, water reservoir drain, W. lake, W. lake outlet, ditch, marsh outlet, bomb-crater, metal water tank.
Sigara distincta (Fieber). E. lake.
B. *S. falleni* (Fieber). E. lake.
S. nigrolineata (Fieber). Boy Scout's ponds.
B. *S. semistriata* (Fieber). Water reservoir drain, E. and W. lakes, E. lake outlet, bomb-crater.
S. scotti (Douglas and Scott). W. lake.
Callicorixa praeusta (Fieber). E. and W. lakes, E. lake outlet.

COLEOPTERA (41)

B. *Hygrobia hermanni* Fab. W. lake.
Hyphydrus ovatus L. W. lake, E. lake drain.
B. *Hydroporus angustatus* Sturm. Boy Scout's ponds, freshwater marsh.
H. erythrocephalus L. Boy Scout's ponds, freshwater marsh, ditch, bomb-crater, fresh and salt water pools in lagoon area.
H. gyllenhalii Schiödte. Boy Scout's ponds, beech pond, water reservoir drain, E. lake outlet, ditch, bomb-crater.
B. *H. incognitus* Sharp. Salt marsh.
H. mennonius Nicolai. Beech pond, ditch.
H. ? neglectus Schaum (but could possibly be *H. umbrosus*). Freshwater marsh.
H. obscurus Sturm. Boy Scout's ponds, freshwater marsh.
B. *H. palustris* L. E. lake, E. lake drain, bomb-crater.
H. planus Fab. E. lake outlet.
H. pubescens Gyllenhal. Ditch.
B. *H. striola* Gyllenhal. Beech pond, freshwater marsh, ditch.
H. tristis Paykull. Boy Scout's ponds, freshwater marsh.
H. umbrosus Gyllenhal. Boy Scout's ponds, beech pond, water reservoir drain, freshwater marsh, bomb-crater.
Agabus bipustulatus L. Boy Scout's ponds, water reservoir drain, freshwater marsh, ditch, brackish pool in lagoon area, metal fire tank.
B. *A. guttatus* Paykull. Lake outlet.
A. strumii Gyllenhal. Boy Scout's ponds, water reservoir drain, E. lake, ditch bomb-crater.
B. *Ilybius ater* DeGeer. Freshwater marsh, ditch, mercury vapour light trap.
I. fuliginosus Fab. Boy Scout's ponds, E. and W. lakes, mercury vapour trap.
Copelatus haemorrhoidalis (Fab.). Ditch, bomb-crater.
B. *Rantus notatus* Fab. Ditch.
Colymbetes fuscus L. Brackish pools in lagoon area.
B. *Dytiscus semisulcatus* Müller. Freshwater marsh.
B. *Acilius sulcatus* L. Boy Scout's ponds.
B. *Ochthebius marinus* Paykull. Salt marsh.

B. *O. punctatus* Stephens. Brackish pools in lagoon area.
Helophorus brevipalpis Bedel. Bomb-crater.
B. *H. flavipes* Fab. Ditch.
B. *Megasternum obscurum* (Marsham). Brackish pool in lagoon area.
Hydrobius fuscipes L. Salt marsh, freshwater marsh, ditch.
B. *Anacaena globulus* Paykull. Boy Scout's ponds.
A. limbata Fab. Freshwater marsh, ditch, bomb-crater.
B. *Laccobius nigriceps* Thomson. Ditch.
Helochares lividus Forster. Boy Scout's ponds, freshwater marsh.
B. *Enochrus quadripunctatus* Herbst. Ditch.
Helodes sp. (larvae only). Beech pond.
Cyphon sp. Marsh outlet.
B. *Scirtes* sp. (larvae only). Beech pond, E. lake, freshwater marsh.
B. *Helmis aenea* Müller. E. lake outlet.
B. *Limnius troglodytes* Gyllenhal. E. lake outlet.

DIPTERA (36)

Dixa amphibia (DeGeer). Beech pond, bomb-crater, marsh outlet.
Mochlonyx culiciformis DeGeer. Bomb-crater.
Chaoborus crystallinus (DeGeer). Boy Scout's pond, E. and W. lakes, ditch, bomb-crater.
B. *Ch. flavicans* (Meigen). E. and W. lakes, bomb-crater.
Ch. pallidus (Fab.). E. lake, ditch.
Anopheles maculipennis complex. Adults hibernating in shelters, not breeding on island.
B. *An. claviger* Meigen. Freshwater marsh, bomb-crater.
B. *An. plumbeus* Stephens. Tree-holes, cut bamboo sections, metal fire tank.
Aedes cinereus Meigen. Adults biting, not breeding on the island.
B. *Ae. geniculatus* Olivier. Adults biting, although larvae not encountered, most probably breeds in tree-holes on island.
Ae. annulipes Meigen. Adults biting, not breeding on island.
Ae. cantans Meigen. Adults biting, not breeding on island.
Ae. caspius Pallas. Salt marsh, salt water pools in lagoon area, adults at 150 w. light trap.
Ae. detritus Halliday. Salt marsh, lagoon, salt water pools in lagoon areas, adults at 150 w. light trap.
Ae. dorsalis Meigen. Salt water ditch in lagoon area.
Ae. punctor Kirby. Boy Scout's ponds, woodland pool, water reservoir drain, ditch, bomb-crater, marsh outlet, drain, freshwater pools in lagoon area, adults at 150 w. light trap.
B. *Ae. vexans* Meigen. Adults at 150 w. light trap, apparently not breeding on island.
B. *Orthopodomyia pulchripalpis* Rondani. Adults at 150 w. light trap, possibly breeding in tree-holes on island.

Mansonia richiardii (Ficalbi). Freshwater marsh, ditch, bomb-crater, adults at 150 w. light trap.

Culex pipiens L. Woodland pool, freshwater marsh, ditch, freshwater ditches and pools in lagoon area, in various tin cans, metal fire tanks, oil drums, adults at 150 w. light trap and as hibernating adults in shelters.

B. *C. torrentium* Martini. Freshwater marsh, ditch, freshwater ditches and pools in lagoon area, in various tin cans, metal fire tanks and oil drums, adults at 150 w. light trap.

B. *Culiseta longiareolata* Macquart. Ditch.

C. annulata (Schrank). Boy Scout's ponds, woodland pool, freshwater marsh, ditch, marsh outlet, metal fire tanks and oil drums, bomb-crater, adults at 150 w. light trap and as hibernating adults in shelters.

B. *C. subochrea* (Edwards). Ditch.

C. morsitans (Theobald). Boy Scout's ponds, freshwater marsh ditch, bomb-crater, adults at 150 w. light trap.

C. litorea (Shute). Freshwater marsh, ditch, bomb-crater, adults at 150 w. light trap.

C. fumipennis (Stephens). Boy Scout's ponds, ditch.

B. *Simulium austeni* Edwards. Adults biting, not breeding on island.

S. aureum Fries. E. lake outlet.

B. *S. erythrocephalum* DeGeer. Adults biting, not breeding on island.

S. equinum grp. Adults biting and at 150 w. light trap, not breeding on island.

B. *S. argyreatum* Meigen. E. lake outlet.

B. *S. arygreatum* Meigen. E. lake outlet.

S. ornatum Meigen. E. lake outlet.

B. *S. nitidifrons* Edwards. Adults biting, possibly breeding on island.

B. *Ephydra* sp. Salt marsh.

COLLECTIONS FROM THE ISLE OF PURBECK

This area lies to the south of Brownsea Island and is characterised by extensive areas of dry (*Callunetum*) and wet (*Calluna vulgaris* L., *Erica tetralix* L. and *Drosera* spp.) heathlands, and scattered small growths of scrub vegetation (*Betula, Salix, Ulex,* etc.). During the last war the area was extensively bombed, and because clay underlies most of the top soil the resulting bomb-holes readily filled with rain water to form numerous small, mostly shallow, pools. These are referred to as the heathland pools. Slightly bigger, less exposed and more shaded pools occur in the scrub areas, and are called woodland pools. There are also a few larger and shallow pools of exposed water forming typical grassy habitats, and a few ditches which are mostly found along the roadside. Extensive colonization of *Spartina* occurs along most of the much indented coastline, and small salt water pools and marshes are formed.

Most of the collections were made from the Studland Heath area, which is scheduled as a Site of Special Scientific Interest, and the Arne Peninsula, but because of the absence of running water in the area a few collections were made from two sites on the Corfe River; one being near Corfe Castle (site 1, Nat. Grid Ref. 957824) and the other near Arne (site 2, Nat. Grid Ref. 962847). No collections were made from Littlesea, a large freshwater lake in the Studland area. Because of the larger area involved, and the many more collections of water, no attempt has been made to identify the specific habitats from which the various insects were collected; it being considered sufficient to differentiate only between the types of habitat, e.g., heathland pools, marshy ground, etc.

Both toads and newts occur in the area, but they do not appear to be common, and only the occasional newt was encountered during the survey; there are no frogs. Occasionally Sticklebacks (*G. aculeatus* and *G. pungitius* L.) were found in the marshy areas.

PLECOPTERA (2)

N. cinerea. Heathland pools, and adults amongst vegetation at Studland, woodland pools at Arne, Corfe River (site 2).
N. erratica. Adults amongst vegetation at Studland.

EPHEMEROPTERA (4)

L. marginata. Corfe River (site 2).
P. *L. vespertina* (L.). Corfe River (site 2).
C. dipterum. Heathland pools, woodland pools and marshy ground at Studland.
P. *Baëtis rhodani* (Pictet). Corfe River (sites 1 and 2).

TRICHOPTERA (11)

P. striata/P. grandis. Heathland pool at Studland.
G. pellucidus. Woodland pool at Arne.
Limnephilus spp. Heathland pools, woodland pools and marshy ground at Studland, woodland pool at Arne.
P. Leptoceridae. Heathland pools at Studland.
P. *Triaenodes bicolor* (Curtis). Woodlland pool at Studland.
P. *Hydropsyche instabilis* (Curtis). Corfe River (site 1).
P. *Plectrocnemia conspersa* (Curtis). Heathland pools at Studland, woodland pools at Arne.
P. flavomaculatus. Corfe River (site 1).
P. *Holocentropus dubius* (Rambur). Heathland pool at Studland.
P. Hydroptilidae. Woodland pools at Arne.
T. minor. Woodland pool at Arne.

ODONATA (15)

*C. puella**. Adults in flight at Arne.
*C. tenellum**. Adults in flight at Arne.
*P. nymphula**. Heathland pools at Studland, adults in flight at Arne.
I. elegans. Heathland pools and ditch at Studland, adults in flight at Arne.
*E. cyathigerum**. Adults in flight at Arne.
*L. sponsa**. Adults in flight at Arne.
*A. imperator**. Adults in flight at Arne and near Wareham.
*A. cyanea**. Adults in flight at Arne and near Wareham.
P. *A. juncea* (L.)*. Adults in flight at Arne and near Wareham.
*C. aenea**. Adults in flight at Arne and near Wareham.
P. *L. depressa* L. Adults in flight at Studland and Arne*.
*L. quadrimaculata**. Adults in flight at Arne.
P. *Orthetrum coerulescens* (Fab.)* Adults in flight at Arne.
S. striolatum (Charpentier). Adults in flight at Studland and Arne*.
P. *S. danae* (Sulzer)*. Adults in flight at Arne.
*Not seen in present survey, but recorded by Moore (1964).

HEMIPTERA (20)

H. stagnorum. Heathland pools at Studland.
P. *Microvelia reticulata* (Buremeister). Winged form, heathland pools at Studland.
P. *G. gibbifer* Schummel. Heathland pools at Studland, woodland pools at Arne.
P. *G. odontogaster* (Zetterstedt). Heathland pools and marshy ground at Studland.
G. thoracicus. Heathland pools at Studland.
*N. cinerea**. Pools at Arne.
P. *Ilyocoris cimicoides* (L.) Heathland pools and marshy ground at Studland.
P. *N. glauca* L. Heathland pools and ditches at Studland.
N. obliqua. Heathland pools at Studland, Pools at Arne.*
P. *N. viridis* Delcourt. Brackish pool near shore at Studland.
H. castanea. Heathland pool at Studland, Pools at Arne.*
P. *H. moesta* (Fieber). Heathland pool at Studland.
H. linnei Heathland and woodland pools and marshy ground at Studland, Corfe River (site 2).
H. sahlbergi. Heathland and woodland pools and ditch at Studland.
P. *S. concinna* (Fieber). Corfe River (site 1).
S. distincta. Marshy ground at Studland.
S. nigrolineata. Heathland pools at Studland, tractor tyre tracks in field near Arne.

*Not seen in present survey, but recorded by Pearce and Walton (1939).

P. *S. selecta* (Fieber)/*S. stagnalis* (Leach). Females only, heathland pool at Studland.
S. scotti. Marshy ground at Studland, Corfe River (site 2).
C. praeusta. Marshy ground at Studland.

COLEOPTERA (48)

P. *Haliplus wehnckei* Gerhardt. Heathland pools and ditch at Studland.
Hygrobia sp.* Heathland pool at Studland.
P. *Noterus clavicornis* DeGeer. Heathland pools and marshy ground at Studland.
P. Guignotus geminus (Fab.) Heathland pool at Studland.
P. *Laccophilus minutus* L. Heathland pools and marshy ground at Studland.
H. ovatus. Heathland pool and marshy ground at Studland.
P. *Hygrotus inaequalis* Fab. Heathland pools, marshy ground and ditch at Studland.
P. *H. versicolor* Schaller. Ditch at Studland.
P. *Deronectus* sp.* Heathland pool and marshy ground at Studland.
P. *Stictonotus lepidus* Olivier. Heathland and woodland pools at Arne.
P. *Scarodytes lineatus* Fab. Heathland and woodland pools at Arne.
P. *H. cantabricus* Sharp. Heathland pools at Studland.
H. erythrocephalus. Heathland pools at Studland.
H. gyllenhalii. Heathland and woodland pools, marshy ground. and ditch at Studland, woodland pools and marshy ground at Arne.
P. *H. longulus* Mulsant. Heathland pools at Arne.
H. memnonius. Marshy ground at Arne.
?P. *H. neglectus* Schaum. Heathland pool at Arne.
H. obscurus. Heathland and woodland pools at Studland.
H. planus. Heathland pool at Arne.
H. pubescens. Heathland and woodland pools and marshy ground at Studland.
P. *H. tessellatus* Drapiez. Heathland pool at Arne.
H. tristis. Heathland pools and marshy ground at Studland.
H. umbrosus. Heathland pools, ditch and marshy ground at Studland, woodland pools and marshy ground at Arne.
A. bipustulatus. Heathland and woodland pools at Arne.
P. *A. chalconatus* Panzer. Heathland pool at Studland.
P. *A. conspersus* Marsham. Marshy ground at Studland.
P. *A. nebulosus* Forster. Woodland pool at Arne.
A. sturmii. Heathland and woodland pools at Studland.
P. *Platambus maculatus* L.* Marshy ground at Studland.
P. *I. aenescens.* Heathland pools and marshy ground at Studland.
I. fulignosus. Heathland pools at Studland, marshy ground at Arne.

C. haemorrhoidalis. Heathland pools at Studland.
P. *R. grapii* Gyllenhal. Marshy ground at Arne.
C. fuscus. Heathland pools and marshy ground at Studland.
P. *D. circumcinctus* Ahrens‡. Heathland pool at Studland.
P. *D. marginalis* L. Heathland pools at Studland.
Dystiscus sp. (larvae only). Ditch and marshy ground at Arne.
P. *Graphoderus cinereus* L. Ditch at Studland.
P. *Gyrinus marinus* Gyllenhal. Heathland pools at Studland.
P. *G. natator substriatus* Stephens. Heathland pools at Studland
H. brevipalpis. Ditch at Studland.
H. fuscipes. Woodland pools at Studland.
P. *Limnoxenus niger* Zschach. Marshy ground at Studland.
A. limbata. Heathland and woodland pools at Arne.
P. *Berosus affinis* Brullé. Marshy ground at Studland.
H. lividus. Woodland pool at Studland.
?P. *Helodes minuta* (L). Heathland pool and ditch at Studland.
Cyphon sp. (larvae only). Ditch and marshy ground at Arne.
* Not seen in present survey, but recorded in unpublished reports by Mill Hill School, London.
‡ Not seen in present survey, but recorded by Pearce and Walton (1939).

DIPTERA (25)

D. amphibia. Woodland pools at Studland and Arne.
M. culiciformis. Woodland pools at Studland.
Ch. crystallinus. Heathland pools at Studland.
P. *Ch. obscuripes* Čan der Wulp. Woodland pool at Arne.
Ch. pallidus Fab. Woodland pool at Arne.
An. maculipennis complex*. Corfe and Swanage areas.
Ae. cinereus. Marshy ground at Studland, adults biting at Arne.
Ae. annulipes. Marshy ground at Studland.
Ae. cantans. Woodland pools at Arne.
Ae. caspius. Salt marshes along coast at Studland.
Ae. detritus. Salt water pools and marshes along most of coast line, and around shores of Furzey, Long and Green islands.
Ae dorsalis. Freshwater marshy ground at Lytchett Minster.
Ae. punctor. Heathland and woodland pools and marshy ground at Studland, woodland pools and ditch at Arne.
P. *Ae. rusticus* Rossi. Adults biting at Studland, larval habitats not found but possibly breeding in the area.
M. richiardii. Adults biting at Studland, larval habitats not found but certainly breeding in the area.
C. pipiens. Metal water tank on Furzey island.
C. annulata. Heathland pools and ditches at Studland, ditch at Arne.
C. morsitans. Heathland pools, ditches and marshy ground at Studland.

C. litorea. Heathland pools and ditches at Studland.
C. fummipennis. Ditches and marshy ground at Studland.
S. latipes. Ditch at Lytchett Minster.
S. latipes grp. Adults at M.V. light trap at East Stoke, near Wareham.
P. *S. costatum* Friederichs‡. Adults amongst vegetation at Worth Matravers.
S. aureum grp. Adults at M.V. light trap at East Stoke, near Wareham.
S. equinum grp. Adults biting at Lytchett Minster, M.V. light trap at East Stoke.

*Not seen in present survey, but recorded by Lang (1918).
‡Not seen in present survey, but found by Crosskey (Service, 1966).

Discussion

The aquatic habitats in the two areas differ considerably. Nearly all the collections from the Isle of Purbeck were from small heathland or woodland pools which on Brownsea are poorly represented. Here most specimens were caught from the lakes, ponds and the reed marsh which is quite distinct from the areas of marshy ground on Studland Heath. These differences are probably reflected in the species caught, and of the 126 species found on Brownsea and the 125 found on the Isle of Purbeck, 53 were recorded only from Brownsea and 51 only from the mainland. Because of detailed ecological studies on the mosquitoes they have been collected much more intensively than any of the other groups, consequently any differences between the insect populations of these two areas might be expected to become apparent in this family. Apart from the appearance of one or two specimens of rare mosquitoes, from which little can be deduced about their populations, there are in fact a few well marked differences in the mosquitoes of these two areas. For example, both *Ae. cantans,* which breeds in woodland pools, and *Ae. cinereus,* which breeds in marshy ground, are common on the Isle of Purbeck, but because of the absence of suitable habitats they are rarely found on Brownsea. Similarly, the size of the *Ae. punctor* population was much greater on the mainland, where larvae were found in most of the small heathland pools, than on Brownsea where there were very few suitable breeding places. Conversely, *Ae. detritus* was far more numerous on Brownsea, where its principal larval habitat occurred, than on the Isle of Purbeck. It is likely that differences between populations of species of other orders which can be related to the different types of aquatic habitats of the two sites occur.

The larval habitat of *N. dubitans* is unknown, but Hynes (1958) considered that it was possibly reed-beds. It is therefore interesting to record that the adult collected on Brownsea was caught only about 70 yards from the reed marsh. This appears to be the most westerly record for this species. The presence of *T.*

minor both on Brownsea and at Arne is of interest since there appear to be only 13 published records of this species in Britain, the nearest to its present locality being 22 miles to the northwest at Glanville Wootton in Dorset (Bray, personal communication). This is only the second time it has been taken in Dorset. The discovery of the beetle, *G. cinereus,* was of great interest as this rare species was formerly only known from the Cambridgeshire and Huntingdonshire fens, but later spread to E. Norfolk and North Hampshire (Balfour-Browne, 1953), and more recently has been found twice in Sussex (Balfour-Browne, 1960; Eve, 1962). Its occurrence at Studland Heath represents its most westerly locality.

The most interesting mosquitoes found on Brownsea were *C. longiareolata,* which has only once before been recorded in Britain, at Plymouth (Staley, 1940), and *O. pulchripalpis* which is a rare species and has previously not been found so far west in this country. Also of interest is the appearance of *Ae. vexans,* which is uncommon and *Ae. dorsalis* which usually breeds in brackish waters, but was found in fresh water pools at Lytchett Minster. This species has a scattered but very local distribution in England, in Dorset it has previously been found at Stoborough and Middlebere Heaths (Marshall, 1938).

Acknowledgements

It is a pleasure to thank the following for identifying various specimens:—Mr. J. Balfour-Browne (Coleoptera), Mr. A. E. Gardner (Odonata), Dr's R. Bray, D. E. Kimmins and J. M. Edington (Trichoptera), Mr. R. W. Crosskey and Dr. L. Davies (*Simulium*), and Dr. T. D. Crisp for confirming the identification of *S. concinna.* I also thank the last worker and Mr. T. Gledhill for information concerning the distribution of some of the aquatic insects in Dorset.

I am indebted to the Natural Environment Research Council for the grant given to the Dorset Naturalist's Trust which made it possible to carry out this survey.

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